The Finance-Growth Relationship: an ABM Excercise for Understanding the Switch from Virtuous to Bad Cycles

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Extended Abstract

1. Research Topic

Why is it so important to understand the link between finance and growth? The 2007- 2009 crisis, when systematic issues triggered by the financial system disturbed the real economy, has inspired this study. Minksy (1982) defines the role of lenders as "endogenously destabilizing". The characteristics of this kind of crisis are their evolution from a typical financial crisis to a real economic crisis. Usually, political economy analysis has a monetarist or neoclassic footprint, such as that used in the European context. But the recent chain of events questions the validity and efficacy of this standard approach. The notion like the "neutrality of the finance" (Modigliani-Miller, 1958) or "independence of the money making process from the making credit process" (Modigliani-Miller, 1958) (underlying the mainstream theory of the finance) distorts the correct interpretation of the economic dynamics. This constraints the identification of the problem and its solution.

The presence of "bank money" in the economy and in a financial system that is more advanced (not only banks), changes fundamentally the nature of the credit. In fact, the modern financial system is characterized by financial innovation and speculation. Making credit an endogenous means for money creation, was proposed by Schumpeter (1934). The underpinning questions are: How the economic and the financial systems interact to affect economic growth? And, is there a profound difference between *sociological* and *technological* definitions of the financial system?

When the economy follows a so-called *virtuous cycle*, the presence of a highly-technological level of financial institutions operates beneficially with a high level of saving put into productive use in the economic system, and spurs a highly productive investments level and funding for innovation projects. A high-growth level result. However, the alternative perspective seems entail a new *bad cycles*, in which the financial state determines the growth path. As a result, the growth-finance relationship is inverted.

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2. Review of the literature

Schumpeter's studies take in particular consideration the role of credit, as core of the economy. He put the financial system at center stage. *"Two sons"* of his theories: New growth theory (NGT) (Romer, 1990; Grossman and Helpman, 1991; Aghion and Howit, 1998) and Evolutionary theory (ET) (Nelson and Winter, 1982; Silverberg et al., 1998; Chiaramonte and Dosi, 1992) carry on his studies. I hold these two approaches as a basis for analyzing the *bad* relationship between finance and economic growth. The existent gaps in literature underline the main unresolved issues as the assumptions that in some case are considered an artifact with no clear link to reality (NGT) or the largely rejection of the active role in the economy of the financial system (not neutral)(ET).

3. Research Objective (Hypothesis)

What happens if an economic system has a "Greedy" financial system with a high level of savings invested? Does the presence of "Greedy" institutions reflect a highly-civilized financial system? In addition, if the two "faces of the same coin" are not coincident, can the economy generate a sort of *wealth trap*? The *wealth trap* differs from the short term Keynesian "liquid trap". The latter is a consequence of the *wealth trap*. It encapsulates a *politic/market power* concept (of the technologically advanced financial system) which manipulates the growth path. The label "Greedy" underlines the real status of the financial system today. It is characterized by financial trading activity, which has a strategic self-gain motivation. Currently, the financial market is characterized by complexity. It is a liquid market where supply and demand match automatically. The financial intermediary plays a role of insurance of the liquidity and earns money by managing the flow of investments. The technological revolution started in the 70s/80s of last century is at the basis of this development.

The advanced financial system facilitates financial product differentiation (through financial engineering) making a deep market segmentation. A good financial innovation improves risk management and reduces transactions costs. In contrast, a bad financial innovation facilitates market segmentation and facilitating rent seeking speculator. Following the bad path the financial system, today, has put in place a discriminating monopoly where market power and political power are linked tightly. It uses this monopolistic position and its market/political power to increase selfgain and maximizes the economic rent. Then, it captures the consumer surplus. Through an accelerator effect, positive economic rent opportunities created by bad financial innovation, multi-leveraging, and ongoing segmentation, increase information asymmetries. This increases the possibility of defaults and the likelihood that a financial crisis become an economic crisis. The main hypothesis is that in an economy where the financial institutions are "Greedy" currently exists a possibility to switch from a *virtuous cycle* to an anticompetitive *bad cycle*. If increasing political power of the financial markets (an externality of the

evolution of the financial system) is not correctly managed (and, thus, it is possible to speak of increasing "political power" of the financial system), the relationship will run with an opposite direction to the *virtuous cycle*, activating a wealth destroying cycle *(wealth trap)*. The conflict between public interest and private interest seems likely to be reason of switching between *good* and *bad cycles*.

4. Research Strategy (Methodology)

The model thus has political economy dynamics with a non-linearity at which the system can flip from *good (virtuous)* to *bad* cyclical equilibrium. Then, I followed Dosi et al., 2011 and Delli Gatti et al., 2010 quantitative analysis of numerical simulation. A dynamic non-linear ABM model (see Tesfatsion and Judd, 2006; Le Baron, 2006, LeBaron and Tesfatsion, 2008) called BFSE (Based-line Financial System Economy) has been developed and a core of it was simulated using ICEACE (Earlingsson et al., 2013) model[2] to explain and show the existence of this *double cycle*. It was simulated with MATLAB software. Very recently in literature (see Bezemer, 2011; Cincotti et al., 2010) is emerged the importance to use a balance sheet approach as additional methodology to support the consistency of the ABM model checking his solidity and economically well-foundation. Indeed, monetary and real flows, given by agents' behaviors and interactions determine the periodic balance sheet dynamic. Then, I consider the balance sheet of each agent of the model.

5. Conclusions

All the studies upon the 2007 credit crisis and the resulting recession has reveled the inadequacy of the predominant theoretical frameworks and also its failure to propose adequate policy solution. The model developed draw an enviroment, the economy, where the interaction are among the following agents: Commercial Banks, Firms, Households, an Investment Bank, a Central Bank and a Government. The focus start from the Commerical Banks and Investment Bank role (they are rappresentative of the financial system) so-called "virtual economy" to "real economy". *The economy's financial instability reside in the financial structure.* The research try to reply to the following policy questions: How can the *virtuous cycle* be restored? How can a *virtuous cycle* be prevented from becoming a *bad* one? Further extention look to test particular "intervention on" or "introduction of" some policy variable in the model analizing the different "scenario" (Policy Experiment). The ambition of this research is to turn on a light in the shadow of the current academic debate in order to lay the foundation for a new generation of economic growth model and policy design focused on the mixed between monetary, macroprudencial and structural policies to prevent a *virtuous cycle* from becoming *bad* one, again.

[2] ICEACE is open source: http://iceace.github.io/home/

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